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=> FILE REG
FILE 'REGISTRY' ENTERED AT 19:51:44 ON 14 APR 2010
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=> DISPLAY HISTORY FULL L1-

     FILE 'REGISTRY' ENTERED AT 19:27:38 ON 14 APR 2010
                  E SODIUM NITRATE/CN
L1                1 SEA "SODIUM NITRATE"/CN
                  E POTASSIUM NITRATE/CN
L2                1 SEA "POTASSIUM NITRATE"/CN
                  E AMMONIUM NITRATE/CN
L3                1 SEA "AMMONIUM NITRATE"/CN
                  E MAGNESIUM NITRATE/CN
L4                1 SEA "MAGNESIUM NITRATE"/CN
                  E CALCIUM NITRATE/CN
L5                1 SEA "CALCIUM NITRATE"/CN
                  E GADOLINIUM NITRATE/CN
L6                1 SEA "GADOLINIUM NITRATE"/CN
                  E SODIUM PERCHLORATE/CN
L7                1 SEA "SODIUM PERCHLORATE"/CN
                  E POTASSIUM PERCHLORATE/CN
L8                1 SEA "POTASSIUM PERCHLORATE"/CN
                  E LITHIUM PERCHLORATE/CN
L9                1 SEA "LITHIUM PERCHLORATE"/CN
                  E POTASSIUM FLUORIDE/CN
L10               1 SEA "POTASSIUM FLUORIDE"/CN
                  E POTASSIUM HEXAFLUOROPHOSPHATE/CN
L11               1 SEA "POTASSIUM HEXAFLUOROPHOSPHATE"/CN
                  E SODIUM TETRAFLUOROBORATE/CN
L12               1 SEA "SODIUM TETRAFLUOROBORATE"/CN
                  E PETN/CN
L13               1 SEA PETN/CN
L14             708 SEA AZIDE# AND M/ELS
                  E TNT/CN
L15               1 SEA TNT/CN
                  E SILICON/CN
L16               1 SEA SILICON/CN

     FILE 'HCA' ENTERED AT 19:37:49 ON 14 APR 2010
L17           39961 SEA (L16 (L) NANO?) OR (NANO?(2A)(SILICON OR SILICONS OR
                    SI))
L18          133999 SEA EXPLOS? OR EXPLOD? OR BOMB OR BOMBS OR BOMBED OR
                    BOMBING# OR DETONA?
L19          370231 SEA NITRATE#
L20           70889 SEA (L1 OR L2 OR L3 OR L4 OR L5 OR L6)
L21           75327 SEA PERCHLORATE#
L22           23338 SEA (L7 OR L8 OR L9)
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L23         4764 SEA (FLUORIDE# OR F)(2A)SALT#
L24        14447 SEA L10 OR L11 OR L12
L25         3851 SEA L13 OR PETN
L26        53479 SEA L14 OR AZIDE#
L27        11724 SEA L15 OR TNT OR TRINITROTOLUENE#
L28          146 SEA L17 AND L18
L29           16 SEA L28 AND (L19 OR L20)
L30           10 SEA L28 AND (L21 OR L22)
L31            1 SEA L28 AND (L23 OR L24)
L32            2 SEA L28 AND L25
L33            3 SEA L28 AND L26
L34            9 SEA L28 AND L27
L35          365 SEA SAILOR ?/AU
L36          327 SEA MIKULEC ?/AU
L37           60 SEA KIRTLAND ?/AU
L38            2 SEA L35 AND L36 AND L37
L39        16354 SEA (L16 (L) (PORE# OR PORO? OR NANOPOR?)) OR ((PORE# OR
                 PORO? OR NANOPOR?)(2A)(SILICON OR SILICONS OR SI))
L40              QUE NANO?
L41         3907 SEA L39 AND L40
L42           26 SEA L41 AND L18
L43           14 SEA L42 AND ((L19 OR L20 OR L21 OR L22 OR L23 OR L24 OR
                 L25 OR L26 OR L27))
L44           28 SEA (L29 OR L30 OR L31 OR L32 OR L33 OR L34) OR L43
L45            8 SEA 1808-2002/PY,PRY,AY AND L44
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=> FILE HCA
FILE 'HCA' ENTERED AT 19:51:59 ON 14 APR 2010
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=> D L45 1-8 ALL HITSTR

L45  ANSWER 1 OF 8  HCA  COPYRIGHT 2010 ACS on STN
AN   148:286848  HCA  Full-text
ED   Entered STN:  20 Mar 2008
TI   Method for preparation of enhanced nanocomposite combustion
     accelerants
IN   Brousseau, Iii, Louis
PA   Quantum Logic Devices, Inc., USA
SO   U.S., 14pp.
     CODEN: USXXAM
DT   Patent
```

LA English
INCL 428403000; 149003000; 149029000; 149108200; 977773000
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 50
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 7338711	B1	20080304	US 2003-639669	20030812
PRAI	US 2002-402660P	P	20020812		

AB The invention presents metal nanoparticles with designed or engineered org. mol. coatings which provide enhanced or improved characteristics to the coated nanoparticles and methods for forming the improved nanoparticles from oxide or ceramic coated original metal nanoparticles. Thus, aluminum nanoparticles with passivating aluminum oxide coating can be treated with combination of reagents that dissolve passivating oxide and leave org. mol. coating bonded to the nanoparticle surface creating combustion accelerant.

ST metal nanoparticle engineered surface modification fuel combustion accelerant prepn

IT **Explosives**
Fuels
Nanoparticles
Propellants (fuels)
Surface treatment
(method for prepn. of enhanced nanocomposite combustion accelerants)

IT 64-19-7, Acetic acid, uses
(0in aluminum nanoparticle surface treatment; method for prepn. of enhanced nanocomposite combustion accelerants)

IT **78-11-5, PETN 118-96-7, TNT**
121-82-4, RDX 479-45-8, Tetryl
(**explosive**; method for prepn. of enhanced nanocomposite combustion accelerants)

IT 60-29-7, Diethyl ether, uses 62309-51-7, Propanol
(fuel; method for prepn. of enhanced nanocomposite combustion accelerants)

IT 67-63-0, Isopropanol, uses 121-44-8, Triethylamine, uses
1310-58-3, Potassium hydroxide, uses 1322-36-7, Dodecanethiol
7732-18-5, Water, uses 12125-01-8, Ammoniumfluoride
(in aluminum nanoparticle surface treatment; method for prepn. of enhanced nanocomposite combustion accelerants)

IT 142-82-5, Heptane, uses
(method for prepn. of enhanced nanocomposite combustion accelerants)

IT 1333-74-0, Hydrogen, processes
(method for prepn. of enhanced nanocomposite combustion accelerants)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-95-4, Magnesium, uses 7439-98-7, Molybdenum, uses 7440-09-7, Potassium, uses **7440-21-3, Silicon**, uses 7440-23-5, Sodium, uses 7440-32-6, Titanium, uses 7440-38-2, Arsenic, uses 7440-42-8, Boron, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses

7723-14-0, Phosphorus, uses
(nanoparticles; method for prepn. of enhanced nanocomposite combustion accelerants)

IT 1344-28-1, Aluminum oxide, uses
(original coating on aluminum nanoparticles; method for prepn. of enhanced nanocomposite combustion accelerants)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE CITED REFERENCES

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(3) Armstrong; Nano Letters 2002, V0(0)
(4) Bonitatebus; US 6797380 B2 2004 HCA
(5) Bonnemann; US 6531304 B1 2003 HCA
(6) Chen; J Phys Chem B 2001, V105, P8816 HCA
(7) Fawls; US 6652682 B1 2003 HCA
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(9) Graiver; US 5891548 A 1999 HCA
(10) Guo; US 6177088 B1 2001 HCA
(11) Hofmann; US 6984274 B2 2006 HCA
(12) Kataby; Langmuir 1999, V15, P1703 HCA
(13) Nieder; US 4637847 A 1987 HCA
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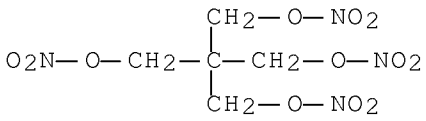
IT 78-11-5, PETN 118-96-7, TNT
(explosive; method for prepn. of enhanced nanocomposite combustion accelerants)

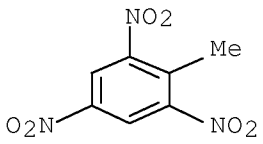
RN 78-11-5 HCA

CN 1,3-Propanediol, 2,2-bis[(nitrooxy)methyl]-, 1,3-dinitrate (CA INDEX NAME)



RN 118-96-7 HCA

CN Benzene, 2-methyl-1,3,5-trinitro- (CA INDEX NAME)



IT 7440-21-3, Silicon, uses
(nanoparticles; method for prepn. of enhanced

nanocomposite combustion accelerants)
RN 7440-21-3 HCA
CN Silicon (CA INDEX NAME)

Si

L45 ANSWER 2 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 142:474962 HCA Full-text
ED Entered STN: 09 Jun 2005
TI Photoluminescent polymetalloles as chemical sensors for the detection of explosive nitroaromatic compounds
IN Sailor, Michael J.; Trogler, William C.; Sohn, Honglae; Calhoun, Rebecca M.
PA The Regents of the University of California, USA
SO U.S. Pat. Appl. Publ., 36 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM G01N021-64
INCL 436106000; X43-617.2
CC 80-5 (Organic Analytical Chemistry)
Section cross-reference(s): 50, 59, 61
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 20050101026	A1	20050512	US 2002-244053	20020914
US 7482168	B2	20090127		
PRAI US 2001-322908P	P	20010915		

AB Explosive nitroarom. compds. in air, water, or other surfaces are detected by using photoluminescent polymetalloles placed in a quartz flow cell contg. the analytes and measuring the quenching of the photoluminescence of the polymetallole against a std. The flow cell is filled with air, seawater, or another fluid. The analyte can be TNT, DNT, nitrobenzene, or picric acid. An explosive residue is detected with a silicon polymer "nanowire" sensor contg. a photoluminescent polysilole and detecting the presence or absence of luminescence with a UV source wherein the quenching of the luminescence confirms the presence of an explosive.
ST photoluminescence quenching polymetallole sensor explosive nitroarom detection
IT Nitro compounds
(arom.; photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
IT Aromatic compounds
(nitro; photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
IT Air analysis
Explosives
Luminescence quenching

Seawater
(photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
IT 88-89-1, Picric acid 98-95-3, Nitrobenzene, analysis
118-96-7, Tnt 25321-14-6, Dnt
(photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
IT 502659-10-1DP, methoxy terminated 502659-11-2DP, methoxy terminated
502659-12-3DP, methoxy terminated 502659-13-4P 502659-14-5DP, methoxy terminated 502659-15-6DP, methoxy terminated
502659-16-7DP, methoxy terminated 502659-17-8DP, methoxy terminated
502659-18-9DP, methoxy terminated 502659-19-0P 502659-20-3DP, methoxy terminated
(photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
IT 67-56-1, Methanol, reactions 75-54-7, Methyldichlorosilane
1631-84-1, Dichlorophenylsilane 16030-09-4, 1,1-Dichloro-2,3,4,5-tetraphenylgermole 79343-32-1, 1,1-Dichloro-2,3,4,5-tetraphenylsilole
(photoluminescent polymetalloles as chem. sensors for detecting explosive nitroarom. compds.)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
UPOS.G Date last citing reference entered STN: 16 Feb 2009
OS.G CAPLUS 2007:227860; 2004:905321
RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE CITED REFERENCES

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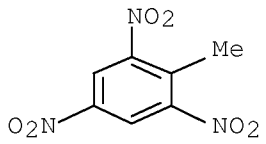
IT **118-96-7, Tnt**
(photoluminescent polymetalloles as chem. sensors for detecting **explosive** nitroarom. compds.)
RN 118-96-7 HCA
CN Benzene, 2-methyl-1,3,5-trinitro- (CA INDEX NAME)



L45 ANSWER 3 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 142:25429 HCA Full-text
ED Entered STN: 30 Dec 2004
TI **Explosive** initiator consisting of **nanocrystalline silicon** containing oxidants within pores
IN Sailor, Michael J.; Mikulec, Frederic V.; Kirtland, Joseph D.
PA The Regents of the University of California, USA
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C06B045-00
INCL 149002000
CC 50-4 (Propellants and Explosives)

Section cross-reference(s): 79

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 20040244889	A1	20041209	US 2003-731220	20031209
PRAI US 2002-432112P	P	20021210		

AB An initiating explosive for detonating a second explosive is comprised of nanocryst. porous silicon contg. a solid oxidant within the pores (esp. inorg. nitrates, perchlorates, fluorides, PETN, metal azides, TNT, and gadolinium nitrate). The solid oxidant is baked into the pores of the polycryst. silicon, which can take the form of nanowires, thin films, powders, filaments, etc. The compn. can be used to detonate a second explosive, to det. the concn. of a target analyte by measuring the emitted light following detonation, or can be used as microelectromech. sensors (MEMS).

ST secondary explosive porous silicon oxidant; detonator wire explosive porous nanocryst silicon porous oxidant; spectral analysis secondary explosive targeted analyte

IT Detonators
(explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT Micromachines
(microelectromech. devices, sensors; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT Porosity
(of silicon matrix initiators; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT Azides
(oxidants; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT Nanowires
(silicon, matrix; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT Explosives
(solid; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT 7440-21-3, Silicon, uses
(nanocryst., matrix; explosive initiator consisting of nanocryst. silicon contg. oxidants within pores)

IT 78-11-5, PETN 118-96-7, TNT 6484-52-2, Ammonium nitrate, uses 7601-89-0, Sodium perchlorate 7601-90-3D, Perchloric acid, salts 7631-99-4, Sodium nitrate, uses 7697-37-2D, Nitric acid, salts 7757-79-1, Potassium nitrate, uses 7778-74-7, Potassium perchlorate 7789-23-3, Potassium fluoride 7791-03-9, Lithium perchlorate 10124-37-5, Calcium nitrate 10168-81-7,

Gadolinium nitrate 10377-60-3, Magnesium
nitrate 13755-29-8, Sodium tetrafluoroborate
17084-13-8, Potassium hexafluorophosphate
(oxidants; explosive initiator consisting of
nanocryst. silicon contg. oxidants within pores)

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

UPOS.G Date last citing reference entered STN: 29 Jan 2010

OS.G CAPLUS 2010:75380; 2010:10864; 2009:1222708; 2006:1182545; 2009:161902

IT 7440-21-3, Silicon, uses
(nanocryst., matrix; explosive initiator
consisting of nanocryst. silicon contg.
oxidants within pores)

RN 7440-21-3 HCA

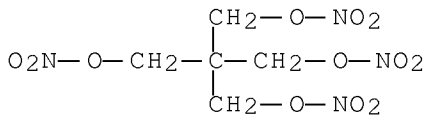
CN Silicon (CA INDEX NAME)

Si

IT 78-11-5, PETN 118-96-7, TNT
6484-52-2, Ammonium nitrate, uses 7601-89-0
, Sodium perchlorate 7631-99-4, Sodium
nitrate, uses 7757-79-1, Potassium nitrate
, uses 7778-74-7, Potassium perchlorate
7789-23-3, Potassium fluoride 7791-03-9, Lithium
perchlorate 10124-37-5, Calcium nitrate
10168-81-7, Gadolinium nitrate 10377-60-3,
Magnesium nitrate 13755-29-8, Sodium
tetrafluoroborate 17084-13-8, Potassium hexafluorophosphate
(oxidants; explosive initiator consisting of
nanocryst. silicon contg. oxidants within pores)

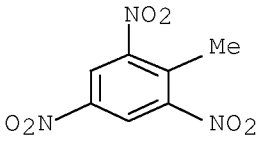
RN 78-11-5 HCA

CN 1,3-Propanediol, 2,2-bis[(nitrooxy)methyl]-, 1,3-dinitrate (CA INDEX NAME)

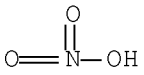


RN 118-96-7 HCA

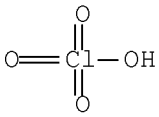
CN Benzene, 2-methyl-1,3,5-trinitro- (CA INDEX NAME)



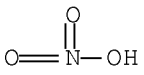
RN 6484-52-2 HCA
CN Nitric acid ammonium salt (1:1) (CA INDEX NAME)



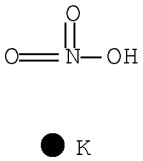
RN 7601-89-0 HCA
CN Perchloric acid, sodium salt (1:1) (CA INDEX NAME)



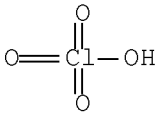
RN 7631-99-4 HCA
CN Nitric acid sodium salt (1:1) (CA INDEX NAME)



RN 7757-79-1 HCA
CN Nitric acid potassium salt (1:1) (CA INDEX NAME)

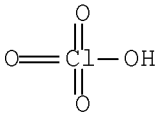


RN 7778-74-7 HCA
CN Perchloric acid, potassium salt (1:1) (CA INDEX NAME)

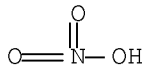


RN 7789-23-3 HCA
CN Potassium fluoride (KF) (CA INDEX NAME)

RN 7791-03-9 HCA
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

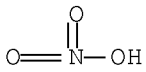


RN 10124-37-5 HCA
CN Nitric acid, calcium salt (2:1) (CA INDEX NAME)



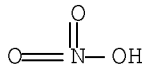
● 1/2 Ca

RN 10168-81-7 HCA
CN Nitric acid, gadolinium(3+) salt (3:1) (CA INDEX NAME)



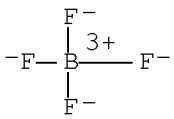
● 1/3 Gd(III)

RN 10377-60-3 HCA
CN Nitric acid, magnesium salt (2:1) (CA INDEX NAME)



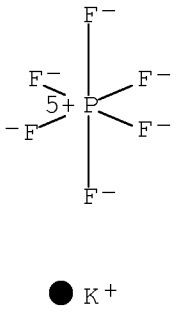
● 1/2 Mg

RN 13755-29-8 HCA
CN Borate(1-), tetrafluoro-, sodium (1:1) (CA INDEX NAME)



● Na^+

RN 17084-13-8 HCA
CN Phosphate(1-), hexafluoro-, potassium (1:1) (CA INDEX NAME)



L45 ANSWER 4 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 139:119445 HCA Full-text
ED Entered STN: 14 Aug 2003
TI Si oxidizer nanostructure for explosive at cryogenic temperature
IN Diener, Joachim; Gross, Egon; Kunzer, Nicolai; Schildknecht, Manfred; Rudolf, Karl; Hofmann, Heinz; Kovalev, Dimitri; Timosnenko, Victor
PA Diehl Munitionssysteme GmbH & Co. KG, Germany
SO U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01L021-8238
INCL 438200000
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20030148569	A1	20030807	US 2003-360429	20030206
	US 6803244	B2	20041012		
	DE 10204895	A1	20030814	DE 2002-10204895	20020206
	DE 10204895	B4	20040729		
	EP 1334955	A2	20030813	EP 2003-2476	20030205K
PRAI	DE 2002-10204895	A	20020206		

AB The invention relates to a nanostructured reactive substance and a process for producing the same, intermixing of silicon and oxidizing agent on a nanometer size scale permits virtually direct contact between the fuel and the oxidizing agent, only sepd. by a barrier layer. After the barrier layer is broken open, fuel and oxidizing agent are spatially directly together and can react, liberating energy. The reactive substance has a high reaction rate in comparison with conventional reactive materials.
ST silicon oxidizer nanostructure explosive cryogenic temp
IT Explosives
Nanostructures
(Si oxidizer nanostructure for explosive at cryogenic temp.)

IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses
7790-69-4, Lithium nitrate
(Si oxidizer nanostructure for
explosive at cryogenic temp.)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
UPOS.G Date last citing reference entered STN: 19 Aug 2009
OS.G CAPLUS 2006:1182545; 2004:571388
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE CITED REFERENCES
(1) Anderson; US 6482517 B1 2002 HCA
(2) Kovalev, D; Strong Explosive Interaction of Hydrogenated Porous Silicon with Oxygen at Cryogenic Temperatures 2001, V87(6), P068301-1 MEDLINE
(3) Mikulec, F; Wiley-VCH Verlag GmbH 2002, V4(2002), P38
(4) Tapphorn; US 20020168466 A1 2002 HCA
(5) Zhang; US 6203864 B1 2001 HCA
IT 7440-21-3, Silicon, uses
(Si oxidizer nanostructure for
explosive at cryogenic temp.)
RN 7440-21-3 HCA
CN Silicon (CA INDEX NAME)

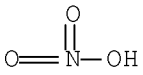
L45 ANSWER 5 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 139:103201 HCA Full-text
ED Entered STN: 07 Aug 2003
TI Nanostructured reactive materials for explosive charges
PA Diehl Munitionssysteme GmbH & Co. KG, Germany
SO Ger. Gebrauchsmusterschrift, 10 pp.
CODEN: GGXXFR
DT Patent
LA German
IC ICM C06B043-00
ICS C06B033-00
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 20201938	U1	20030717	DE 2002-20201938	20020206
PRAI	DE 2002-20201938		20020206		

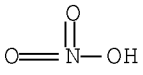
AB Nano-structured, porous reactive materials, consisting of reactive bodies, contain voids 1-1,000 nm diam. The reactive materials are in the form of reactive particles (e.g., Si) covered with a passivation layer (e.g., H2). The voids are provided with an oxidn. agent (e.g., LiNO3). The reactive material is suitable for ignition of various charges (e.g., for projectiles, position control of satellites, guidance control of rockets, ignition of explosives, propellants, and pyrotech. compns.).
ST nanostructured reactive material explosive; igniter

nanostructured reactive material
IT Etching
(electrochem.; in prepn. of nanostructured reactive materials for explosive charges)
IT Explosives
Igniters
(nanostructured reactive materials for explosive charges)
IT Guided missiles
Satellites
Space vehicles
(nanostructured reactive materials for explosive charges for position control of)
IT Nitrates, uses
Perchlorates
(oxidn. agent for nanostructured reactive materials for explosive charges)
IT 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses 7440-42-8, Boron, uses 7440-67-7, Zirconium, uses
(nanostructured reactive materials for explosive charges)
IT 302-01-2, Hydrazine, uses 6484-52-2, Ammonium nitrate, uses 7631-99-4, Sodium nitrate, uses 7722-84-1, Hydrogen peroxide, uses 7757-79-1, Potassium nitrate, uses 7789-18-6, Cesium nitrate 7790-69-4, Lithium nitrate 7790-98-9, Ammonium perchlorate 7803-49-8, Hydroxylamine, uses 10022-31-8, Barium nitrate 10042-76-9, Strontium nitrate 10124-37-5, Calcium nitrate 13126-12-0, Rubidium nitrate 37836-27-4, Hydrazine nitrate
(oxidn. agent for nanostructured reactive materials for explosive charges)
IT 7440-21-3, Silicon, uses
(nanostructured reactive materials for explosive charges)
RN 7440-21-3 HCA
CN Silicon (CA INDEX NAME)

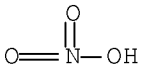
IT 6484-52-2, Ammonium nitrate, uses 7631-99-4, Sodium nitrate, uses 7757-79-1, Potassium nitrate, uses 10124-37-5, Calcium nitrate
(oxidn. agent for nanostructured reactive materials for explosive charges)
RN 6484-52-2 HCA
CN Nitric acid ammonium salt (1:1) (CA INDEX NAME)



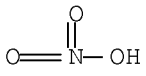
RN 7631-99-4 HCA
CN Nitric acid sodium salt (1:1) (CA INDEX NAME)



RN 7757-79-1 HCA
CN Nitric acid potassium salt (1:1) (CA INDEX NAME)



RN 10124-37-5 HCA
CN Nitric acid, calcium salt (2:1) (CA INDEX NAME)



L45 ANSWER 6 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 136:238742 HCA Full-text
ED Entered STN: 04 Apr 2002
TI **Explosive nanocrystalline porous silicon** and its use in atomic emission spectroscopy

AU Mikulec, Frederic V.; Kirtland, Joseph D.; Sailor, Michael J.
CS Department of Chemistry and Biochemistry, University of California at San Diego, La Jolla, CA, 92093-0358, USA
SO Advanced Materials (Weinheim, Germany) (2002), 14(1), 38-41
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 50, 66
AB A simple method for generating a solid-state explosive using porous Si and a metal nitrate soln., which functions well as an alternative excitation source for at. emission spectroscopy, is described. The porous Si serves as both the excitation source (via the explosion) and the matrix for the analyte. Porous Si samples were prepd. from n-type (P-doped) Si wafers with (100) orientation and resistivity of 4 Ω cm. Most porous Si samples could be induced to explode, regardless of the type of cryst. Si used or the resulting porous matrix morphol. The energy related to the explosion is enough to excite at. emission from the alkali metals and Pb, in addn. to mol. emission from Ba and Sr. The intensity of the explosion can be varied by adjusting the HF/EtOH ratio used in the prepn. of the porous Si material. Explosive nitrate-treated porous Si is a promising material for qual. anal. in microarrays or as a propulsion sources in microelectromech. systems devices.
ST explosive nanocryst silicon nitrate atomic emission spectroscopy
IT Atomic emission spectrometry
Explosives
Nanocrystals
(explosive nanocryst. porous silicon and use in at. emission spectroscopy)
IT Alkali metals, analysis
(explosive nanocryst. porous silicon and use in at. emission spectroscopy)
IT 7439-92-1, Lead, analysis 7440-24-6, Strontium, analysis 7440-39-3, Barium, analysis 7787-32-8, Barium fluoride (BaF2) 10042-76-9, Strontium nitrate (Sr(NO3)2) 10099-74-8, Lead nitrate (Pb(NO3)2)
(explosive nanocryst. porous silicon and use in at. emission spectroscopy)
IT 81201-40-3
(explosive nanocryst. porous silicon and use in at. emission spectroscopy)
IT 7440-21-3, Silicon, properties
(porous; explosive nanocryst. porous silicon and use in at. emission spectroscopy)
OSC.G 21 THERE ARE 21 CAPLUS RECORDS THAT CITE THIS RECORD (21 CITINGS)
UPOS.G Date last citing reference entered STN: 12 Oct 2009

OS.G CAPLUS 2009:1093158; 2009:877027; 2009:398843; 2009:101818; 2008:1260684; 2008:1134451; 2008:158882; 2007:1206084; 2007:994356; 2007:834676; 2007:738700; 2007:595139; 2007:395276; 2007:18856; 2006:1254424; 2006:288629; 2005:603394; 2005:206671; 2005:195287; 2004:676099; 2004:676004
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE CITED REFERENCES
(1) Anon; CRC Handbook of Chemistry and Physics, 60th ed 1990
(2) Anon; Properties of Purous Silicon 1997
(3) Benson, D; J Appl Phys 1987, V62, P1622
(4) Canham, L; Mater Res Soc Symp Proc 1992, V256, P63 HCA
(5) Canham, L; Properties of Porous Silicon 1997, P336 HCA
(6) Doan, V; Science 1992, V256, P1791
(7) Golloch, A; Fresenius J Anal Chem 1994, V349, P32 HCA
(8) Herrmann, R; Chemical Analysis by Flame Photometry 2nd rev ed 1963, P370
(9) Janshoff, A; J Am Chem Soc 1998, V120, P12108 HCA
(10) Knolle, W; J Electrochem Soc 1973, V120, P1106 HCA
(11) Kovalev, D; Phys Rev Lett 2001, V87, P68301 MEDLINE
(12) Lehmann, V; J Electrochem Soc 1990, V137, P653 HCA
(13) Li, X; Appl Phys Lett 2000, V77, P2572 HCA
(14) McCord, P; Science 1992, V257, P68 HCA
(15) Milewski, P; J Electron Mater 1994, V23, P57 HCA
(16) Muehlemann, M; The Photonics Design and Applications Handbook, 46th Ed 2000, PH273
(17) Sailor, M; Adv Mater 1997, V9, P783 HCA
(18) Searson, P; J Electrochem Soc 1992, V139, P3373 HCA
(19) Skoog, D; Principles of Istrumental Analysis, 4th ed 1992, P196
(20) Stewart, M; Angew Chem Int Ed 1998, V37, P3257 HCA
(21) Urbanski, T; Chemistry and Technology of Explosives 1965, V3, P340
(22) Van Patten, P; J Phys Chem 1996, V100, P3646 HCA
(23) Van Patten, P; J Vac Sci Technol B 1997, V15, P282 HCA
(24) Warneke, B; Computer 2001, V34, P44
IT **7440-21-3, Silicon**, properties
(**porous; explosive nanocryst. porous silicon** and use in at. emission spectroscopy)
RN 7440-21-3 HCA
CN Silicon (CA INDEX NAME)

Si

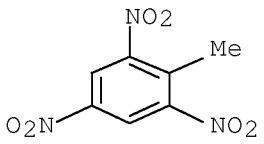
L45 ANSWER 7 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 131:324610 HCA Full-text
ED Entered STN: 03 Dec 1999
TI Detection of nanogram **explosive** particles with a MEMS sensor
AU Pamula, Vamsee K.; Fair, Richard B.

CS Dep. of Electr. & Computer Eng., Duke Univ., Durham, NC, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (1999), 3710(Pt. 1, Detection and Remediation Technologies for Mines and Minelike Targets IV), 321-327
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 50-2 (Propellants and Explosives)
AB The microelectromech. systems (MEMS) technol. was used to fabricate arrays of sensor for detecting the explosive micro particulate residue found in mine fields. MEMS devices were fabricated by a surface micromachining process provided by MCNC. The sensor consists of a bimorph structure of polysilicon/gold cantilevers. An optical detection system was designed to detect the deflection of the cantilevers. The sensors were heated by either radiation or conduction using an UV lamp and a small heater under the sensor chip resp. The deflection of the cantilevers with increasing temp. is presented. Expts. were performed to detect the response of the cantilevers in the presence of an explosive particle. The cantilevers show a response due to the presence due to the presence of nanograms of TNT and RDX in the vicinity of the cantilevers. Currently it is understood that the response shown by the cantilevers is due to the vaporization of the micro particles, which pulls significant heat out of the temp. sensitive beams causing detectable beam motion. The chem. selectivity of the sensor is provided by the unique melting temps. of TNT and RDX.
ST explosive particle nanogram microelectromech sensor detection; TNT particle nanogram microelectromech sensor detection; RDX particle nanogram microelectromech sensor detection; polysilicon gold cantilever sensor explosive particle; mine explosive microelectromech sensor
IT Sensors
(detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
IT Weapons
(explosive mines; detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
IT Explosives
(mines; detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
IT 7440-21-3, Polysilicon, uses 7440-57-5, Gold, uses
(detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
IT 118-96-7, TNT 121-82-4, RDX
(detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)
UPOS.G Date last citing reference entered STN: 16 Feb 2009
OS.G CAPLUS 2008:114172; 2007:1077970; 2006:166370; 2004:325749; 2001:52959
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE CITED REFERENCES

(1) Fair, R; Proc Of SPIE V3392, P409 HCA
(2) Fair, R; Proc of SPIE V3079, P671 HCA
(3) Gibbs, T; LASL explosive property data P174
(4) Myers, L; Aviation Security Problem and Related Technologies Critical Reviews VCR42, P93
(5) Phelan, J; Sandia Report SAND97-1426
(6) Prestrude, A; Proc Of SPIE V2093, P633
(7) Sheldon, T; Proc Of SPIE V2092, P145 HCA
IT 7440-21-3, Polysilicon, uses
(detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
RN 7440-21-3 HCA
CN Silicon (CA INDEX NAME)

Si

IT 118-96-7, TNT
(detection of nanogram explosive particles with microelectromech. sensor with polysilicon-gold cantilevers)
RN 118-96-7 HCA
CN Benzene, 2-methyl-1,3,5-trinitro- (CA INDEX NAME)



L45 ANSWER 8 OF 8 HCA COPYRIGHT 2010 ACS on STN
AN 84:62037 HCA Full-text
OREF 84:10209a,10212a
ED Entered STN: 12 May 1984
TI Stabilized, air bubble-containing explosive compositions
IN Grigaitis, Benedict J.; Holden, Harold W.; Matts, Terrence C.; Miskow, Maurice H.; Richard, Jean P.; Seto, Philip F. L.
PA Canadian Industries Ltd., Can.
SO Ger. Offen., 24 pp.
CODEN: GWXXBX
DT Patent
LA German
IC C06B
CC 50-3 (Propellants and Explosives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	DE 2507572	A1	19751016	DE 1975-2507572	19750221
	DE 2507572	B2	19770623		
	CA 1014356	A1	19770726	CA 1974-193099	19740221
	US 3995673	A	19761207	US 1975-547474	19750206
	IL 46585	A	19780131	IL 1975-46585	19750206
	NO 140377	B	19790514	NO 1975-401	19750207
	NO 140377	C	19790822		
	ZA 7500820	A	19760929	ZA 1975-820	19750210
	GB 1456814	A	19761124	GB 1975-5946	19750212
	BE 825495	A1	19750813	BE 1975-153329	19750213
	IN 140900	A1	19770101	IN 1975-CA279	19750214
	AU 7578294	A	19760819	AU 1975-78294	19750218
	FI 7500478	A	19750822	FI 1975-478	19750220
	FI 59982	B	19810731		
	FI 59982	C	19811110		
	SE 7501921	A	19750822	SE 1975-1921	19750220
	SE 418078	B	19810504		
	SE 418078	C	19810813		
	BR 7501045	A	19751202	BR 1975-1045	19750220
	SU 537624	A3	19761130	SU 1975-2109572	19750220
	PL 97390	B1	19780228	PL 1975-178205	19750220
	CS 183784	B2	19780731	CS 1975-1126	19750220
	FR 2262004	B1	19781006	FR 1975-5362	19750220
	IT 1029814	B	19790320	IT 1975-48277	19750220
	JP 50121412	A	19750923	JP 1975-21070	19750221
	JP 58030277	B	19830628		
	DD 116217	A5	19751112	DD 1975-184349	19750221
	RO 71033	A1	19820201	RO 1975-81469	19750221
PRAI	CA 1974-193099	A	19740221		

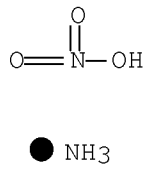
AB Formulations for prepn. of **explosives** contg. encapsulated air bubbles consist of thickeners 0.5-2, encapsulation agents 0.02-2, foamers 0.4-6.5, stabilizing surfactants 1-10, O-contg. salts ≤25% and **explosive** components, e.g., NH4NO3 [**6484-52-2**], **NaNO3** [**7631-99-4**], and ethylene glycol mononitrate (I) [16051-48-2]. Typical foaming agents are alkyl metal sulfates or their salts, e.g., ethoxylated lauryl alc. sulfate ammonium salt (II) [32612-48-9]. Typical stabilizers are C12-22 aliph. alcs. or amines, such as stearyl alc. [112-92-5] or 50:50 mixts. of arachidylamine (III) [10525-37-8] and behenylamine (IV) [14130-06-4]. Org. **nitrate** sensitizers (5-25%), such as I or ethanolamine **nitrate** [20748-72-5] are incorporated into these formulations. Modified guar gums are used as thickeners. For example, a mixt. of NH4NO3 49.7, **NaNO3** 16.4, I 18.0, modified guar gum 0.6, Si [**7440-21-3**] 5.0, Zn chromate 0.5, K pyroantimonate 0.03, C2Cl6 0.3, ethylene glycol [107-21-1] 1.8, II (60% active) 0.45, the III-IV mixt. 0.07, H2O 6.8 and Zn(NO3)2 0.2% in a 2.54-diam. cylinder at 4.5° was ignited by a no. 7 blasting cap after 24 hr and by the same size cap after 4 wk at 35.5°.

ST **explosive** air bubble contg; foaming agent **explosive** ; surfactant stabilizer **explosive**; **nitrate** bubble contg **explosive**; sensitizer **nitrate** **explosive**

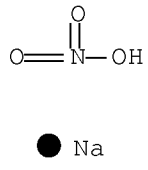
IT Foaming agents
(for **nitrate**-base **explosive** compns.)

IT Thickening agents
(guar gum, modified, for nitrate explosives)
IT Explosives
(nitrates, stabilized air bubble-contg.)
IT Encapsulation
(of air bubbles in explosives, agents for)
IT Surfactants
(stabilizing, for nitrate explosives)
IT 6484-52-2, uses and miscellaneous 7631-99-4, uses and miscellaneous 16051-48-2
(explosives, contg. air bubbles)
IT 139-96-8 3737-55-1 4316-74-9D, Ethanesulfonic acid, 2-(methylamino)-, monosodium salt, N-(coco alkyl) deriv.
(foaming agents, for nitrate based explosives)
IT 32612-48-9
(foaming agents, for nitrate explosives)
IT 7429-90-5, uses and miscellaneous 8049-17-0
(fuel, in nitrate-base explosives contg. air bubbles)
IT 7440-21-3, uses and miscellaneous
(fuels, in nitrate explosives contg. air bubbles)
IT 7778-74-7
(in nitrate-based explosive compns. contg. air bubbles)
IT 9004-70-0
(in nitrate-based explosives contg. air bubbles)
IT 22113-87-7
(sensitizer, in nitrate-base explosives contg. air bubbles)
IT 20748-72-5
(sensitizers, for nitrate explosives contg. air bubbles)
IT 14130-06-4
(stabilizers, contg. arachidylamine, for nitrate explosives)
IT 10525-37-8
(stabilizers, contg. behenylamine, for nitrate explosives)
IT 112-92-5
(stabilizers, for nitrate explosives)
IT 107-21-1, uses and miscellaneous
(surfactants, in nitrate explosives contg. air bubbles)
IT 9000-30-0D, Guar gum, hydroxyalkyl-modified
(thickener, for nitrate explosives contg. air bubbles)
OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
UPOS.G Date last citing reference entered STN: 16 Feb 2009
OS.G CAPLUS 2004:5165; 1987:499287
IT 6484-52-2, uses and miscellaneous 7631-99-4, uses

and miscellaneous
(explosives, contg. air bubbles)
RN 6484-52-2 HCA
CN Nitric acid ammonium salt (1:1) (CA INDEX NAME)



RN 7631-99-4 HCA
CN Nitric acid sodium salt (1:1) (CA INDEX NAME)



IT 7778-74-7
(in nitrate-based explosive compns. contg. air bubbles)
RN 7778-74-7 HCA
CN Perchloric acid, potassium salt (1:1) (CA INDEX NAME)